

REMARKS

Introduction

Claims 1-17 were originally pending in this application. Claims 1-17 remain pending for consideration in this application.

Claim Rejections

35 U.S.C. § 112

Claims 1 –6 and 11-12 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. More precisely, the Examiner stated that there was insufficient antecedent basis for the limitation ‘the occupants’ in line 5 of claim 1 and the limitation “the Bluetooth” in lines 3 and 2 of claims 6 and 12, respectively. In addition, the Examiner indicated that there was insufficient antecedent basis for the limitation “the CAN” in line 2 of claim 11.

The applicants have amended claims 6, 11, and 12 as noted above to comply with the Examiner’s comments. However, in the case of claim 1, the applicants respectfully traverse this particular §112 rejection. Claim 1 is directed toward a vehicle information system having a plurality of operative modules. The claimed operative modules include *a display module that is adapted to provide visual information to the occupants of the vehicle*. The invention of claim 1 is the vehicle information system and the operative modules and their functions, not in the external elements that may be affected by the system or its modules.

More specifically, the applicants are not claiming “the occupants of the vehicle.” In other words, “the occupants of the vehicle” are not part of the subject matter that the applicants regard as the claimed invention. The phrase “the occupants of the vehicle” is included in the claim to simply

clarify the observable extent of the visual information being provided by the display module. This external element is recited in claim 1 because the claimed subject matter of the invention does not exist in a vacuum and the phrase “the occupants of the vehicle” provides clarity of the scope of the claimed subject matter within a greater physical framework. Thus, it is respectfully submitted that the expression “the occupants of the vehicle,” found in claim 1 is not positively recited as part of the subject matter of the claimed invention. Accordingly, this language does not require any antecedent basis.

Claim 14 has similarly been amended to provide antecedent basis for the expression “said control processing unit.” Attorney for applicants apologizes for these errors.

In view of the above, it is respectfully submitted that the claims, as amended, fully comply with the requirements of 35 U.S.C. § 112. Accordingly, applicants request that this rejection under § 112 be withdrawn.

35 U.S.C. §103

Claims 1-4, and 7-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,539,306 to Turnbull. Claims 5-6, and 11-17 were similarly rejected as being unpatentable over the Turnbull ‘306 patent in view of published U.S. Patent Application No. 2004/0032675 to Weller et al. The applicants cannot agree with the Examiner that the invention claimed would have been obvious to one of ordinary skill in the art in view of these references. Accordingly, for the reason set forth below, the applicants respectfully traverse these rejections.

The Prior Art

U.S. Patent No. 6,539,306 to Turnbull

The Turnbull '306 patent is directed toward to a rearview mirror assembly for a vehicle that incorporates a Loran positioning system. In the preferred embodiment of the Turnbull '306 patent, a GPS/GLONASS positioning system is employed in addition to the Loran system (column 4, line 41-42). Figure 1 illustrates the rearview mirror assembly 10 that is mounted to the front windshield 11a of vehicle 11 via mounting foot 10a. The Loran antenna 44 and the Loran receiver circuit 45 are mounted inside of mounting foot 10a of the rearview mirror assembly 10. Due to the characteristics of Loran broadcasts, Turnbull suggests that the Loran antenna may also be mounted on a vehicle accessory in many other locations in the vehicle including the rear window 11b, the rear window deck 11c, the trunk 11d, the instrument panel 11e, the roof 11f, the window glass, the outside mirrors, the sunvisor 11g, the pillars, and the head liner 11h as well as an overhead console 11k and a center high mounted stop lamp (CHMSL) 11m. Further, the Loran antenna 44 is disclosed as being any of several types of antenna suitable for receiving Loran broadcasts, such as whip antennas and loop antennas.

However, in the preferred embodiment (Loran and GPS) of the rearview mirror assembly, Turnbull envisions that both the GPS components and the Loran components are packaged into the rearview mirror assembly 10, so that the Loran H-field antenna, the Loran receiver circuit, the GPS antenna, and the GPS receiver circuit are all positioned together in the mounting foot 10a of the rearview mirror assembly 10 (column 7, lines 39-67). Turnbull also discusses the integration of a compass system 54, an entertainment system 57, and a display system 61 into the rearview mirror assembly 10 having the combined Loran and GPS systems. Clearly, as stated in the Summary of the Invention, the essence of the Turnbull '306 patent is to provide the advantage that the Loran system

and all the major components may be integrally packaged into the rearview mirror assembly thereby reducing manufacturing costs and simplifying installation (column 3, lines 38-41).

In this manner, the rearview mirror assembly of the Turnbull '306 patent provides an automotive rearview mirror with integrated Loran and GPS components that are completely contained within the physical boundaries and structure of the rearview mirror assembly. The Turnbull '306 rearview mirror assembly does not include an antenna array that includes a GPS antenna mounted in an overhead console that extends forward over the upper edge of the vehicle windshield so that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times. In fact, the preferred embodiment of the Turnbull '306 patent teaches away from placing the GPS antenna of its automotive mirror anywhere but physically within the rearview mirror housing.

U.S. Patent Publication No. 2004/0032675 to Weller et al.

The Weller publication is directed toward an interior rearview mirror system that includes a compass system having a display to indicate the general direction in which the vehicle is traveling. Specifically, the Weller compass system, including the compass sensor, may be included on a single printed circuit board positioned at or secured to a back surface of the mirror reflective element, such that the compass/mirror system may be readily installed in the casing of the mirror assembly. The mirror system, or alternately a mirror mounted vehicle information display system, is operable to display information pertaining to the directional heading of the vehicle, the speed of the vehicle, the distance traveled by the vehicle, the altitude of the vehicle, the accurate time and date, and/or the like, all of which information or data may be obtained or derived from a GPS system. The GPS system may be a separate standalone system or may be integrated within the mirror assembly.

Figure 13 illustrates an interior rearview mirror system 500 that comprises a GPS-derived compass system including a global positioning system 551 that has a GPS antenna 552 housed in an accessory module 510 and that is attached to the vehicle window 513a and supports the rearview mirror assembly 514.

The Weller publication further discusses possible optional features that may be associated with the interior rearview mirror system but does not disclose how the optional features would be incorporated. These features include various known protocol interfaces such as CAN or Bluetooth, a communication system, a speaker, a telematics module (which may include a GPS module, a wireless communication module, an human/machine interface (HMI), a display, such as an LED display, a dot matrix display, an alpha numeric display, a video display or the like, and/or a microphone, which may be operable for speech or voice recognition, noise reduction or noise cancellation), a humidity sensor, a remote keyless entry sensor, a tire pressure monitoring system (TPMS), an electronic toll collection sensor, an intelligent headlamp control, user interface controls (such as buttons, switches or the like for controlling various accessories of the vehicle, such as a sunroof, a communication system, lamps, security systems, displays or the like) or any other accessories, sensors, lights, indicators, or displays.

However, neither the Turnbull '306 patent nor the Weller publication disclose or suggest a vehicle information system having an antenna array including a GPS antenna mounted in an overhead console that extends forward over the upper edge of the vehicle windshield such that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times as required by independent claims 1 and 14. Furthermore, the preferred embodiments of both the Turnbull '306 patent and the Weller publication teach away from the concept of employing a separate antenna array located in an overhead console at the upper edge of the vehicle windshield by

seeking to incorporate and include all their various systems components within their respective rearview mirror assemblies.

The Present Invention

In contrast to the prior art references, the present invention as defined in independent claim 1 is a vehicle information system having a plurality of operative modules, including a control processing unit adapted to provide an interface among the plurality of operative modules. The operative modules include a display module adapted to provide visual information to the occupants of the vehicle, a navigation module adapted for global positioning satellite reception to provide vehicle position information to the control processing unit, a telecommunications module adapted for wireless communication to provide communication between the control processing unit and a wireless telecommunications network and between the control processing unit and any one of a plurality of local wireless devices, and a local network interface module adapted to provide communication between a vehicle control bus and the control processing unit. The vehicle information system also includes *an antenna array including a GPS antenna mounted in an overhead console* that is adapted to extend forward over the upper edge of the vehicle windshield such that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times.

Independent claim 14 is directed toward a vehicle information system having a plurality of operative modules including a control processing unit adapted to provide an interface among the plurality of operative modules. The operative modules include a vacuum fluorescent display module adapted to provide visual information to the occupants of the vehicle, a keypad in operative communication with the control processor unit that is adapted to allow a physical interface between

vehicle occupants and the control processing unit, a microphone system adapted to receive voice signals from vehicle occupants, a speaker system adapted to generate audio signals from the control processing unit, an audio conversion module having a voice recognition circuit and a voice synthesizer circuit adapted to receive voice commands from the microphone system and recognize particular predetermined voice commands as being one of a group of predetermined commands and to pass the recognized commands to the control processing unit. The voice synthesizing module is adapted to process signals from the control processing unit and synthesize the signals into intelligible audio output signals and to pass the audio output signals to the speaker system. The vehicle information system further includes a navigation module adapted for global positioning satellite reception having a navigational database to provide vehicle position information and location specific information to the control processing unit, a telecommunications module adapted for wireless communication to provide communication between the control processing unit and a wireless telecommunications network and between the control processing unit and any one of a plurality of local wireless devices. A local network interface module is adapted to provide communication between a vehicle control bus and the control processing unit. The vehicle information system also includes *an antenna array including a GPS antenna mounted in an overhead console* that is adapted to extend forward over the upper edge of the vehicle windshield such that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times.

Argument

A rejection based on §103 must rest on a factual basis, with the facts being interpreted without a hindsight reconstruction of the invention from the prior art. Thus, in the context of an

analysis under § 103, it is not sufficient merely to identify one reference that teaches several of the limitations of a claim and another that teaches several limitations of a claim to support a rejection based on obviousness. This is because obviousness is not established by combining the basic disclosures of the prior art to produce the claimed invention absent a teaching or suggestion that the combination be made. Interconnect Planning Corp. v. Fiel, 774 F.2d 1132, 1143, 227 U.S.P.Q. (BNA) 543, 551 (Fed. Cir. 1985); In Re Corkhill, 771 F.2d 1496, 1501-02, 226 U.S.P.Q. (BNA) 1005, 1009-10 (Fed. Cir. 1985). The relevant analysis invokes a cornerstone principle of patent law:

That all elements of an invention may have been old (the normal situation), or some old and some new, or all new, is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements. Environmental Designs v. Union Oil Co. of Cal., 713 F.2d 693, 698 (Fed. Cir. 1983) (other citations omitted).

A patentable invention . . . may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose without producing anything beyond the results inherent in their use. American Hoist & Derek Co. v. Sowa & Sons, Inc., 220 U.S.P.Q. (BNA) 763, 771 (Fed. Cir. 1984) (emphasis in original, other citations omitted).

As the Court of Appeals for the Federal Circuit has noted, “[w]hen a rejection depends upon a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references.” Ecolochem, Inc. v. Southern Calif. Edison, 56 U.S.P.Q. 2d 1065, 1073 (Fed. Cir. 2000). Here, there is simply no motivation provided in either of the Turnbull, or the Weller references to combine their teachings. Furthermore, even assuming that such a motivation existed, a combination of these references would not result in the a vehicle information system having *an antenna array including a GPS antenna mounted in an overhead console* that is

adapted to extend forward over the upper edge of the vehicle windshield such that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times as described in independent claims 1 and 14.

It is respectfully submitted that the Turnbull and Weller et al references skirt around, but do not suggest the claimed invention *as a whole*. See Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1383 (Fed. Cir. 1986). Further, it is respectfully submitted that one must pick and choose elements from the respective rearview mirror assemblies disclosed in the Turnbull and Weller et al references and then combine these elements by restructuring, using hindsight and applicants' own disclosure, to conclude that the claimed invention is obvious. Applicants respectfully submit that this would be improper in view of the disclosure of the prior art.

The Turnbull '306 patent is directed to a rearview mirror assembly that employs Loran and GPS systems to provide directional and positional information as an output on the mirror assembly. The Turnbull rearview mirror assembly houses both its Loran and GPS system antennas within the rearview mirror housing and does not employ a separate antenna array that may be used for other systems and that is located in an overhead console on the upper edge of the vehicle windshield. The Examiner acknowledges that Turnbull fails to specifically mention an antenna array but suggests that Turnbull's mention of the disclosed types of Loran antennas (whip, loop, etc.) constitute an array. In fact, Turnbull teaches away from the concept of an antenna array housed in an overhead console that is located at the upper edge of the vehicle windshield of the type described in claims 1 and 14 by specifically establishing that the preferred embodiment is fully enclosed within the mirror housing.

On the other hand, the Weller et al. publication patent is directed toward a rearview mirror compass system having a display on the mirror to indicate the general direction in which the vehicle is traveling. The preferred compass and compass sensor system is a GPS system that is incorporated

within the rearview mirror housing. The Weller et al publication suggests that it may be associated with a wide variety of other optional informational and control systems but does not specifically disclose how these other systems would be incorporated other than to suggest the resultant system would be generally integrated within the rearview mirror assembly. The Weller et al publication does not disclose or suggest a vehicle information system having an antenna array including a GPS antenna mounted in an overhead console that extends forward over the upper edge of the vehicle windshield such that the GPS antenna maintains line-of-sight with at least one global positioning satellite transmitter at all times as required by independent claims 1 and 14.

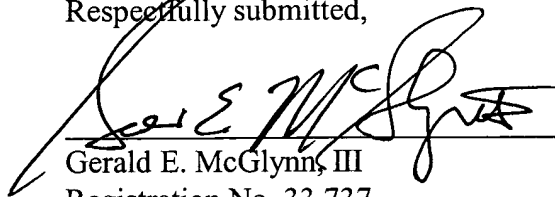
Furthermore, even if the rearview mirror assemblies of the Turnbull '306 patent were combined with the rearview mirror assembly of the Weller et al publication it would not result in the vehicle information system having as antenna array as in the present invention. In short, the applicants respectfully submit that there is no motivation to combine these references. Furthermore, even if the rearview mirror assemblies of the Turnbull and Weller et al references were combined, they would fail to teach the present invention as defined in independent claims 1 and 14.

Thus, it is respectfully submitted that independent claims 1 and 14 recite structure that are not disclosed or suggested by the prior art and are patentably distinguishable from the subject matter of the references discussed above. Claims 2 through 13 are all ultimately dependant upon independent claim 1 and claims 15 through 17 are ultimately dependant upon claim 14 and add further perfecting limitations respectively. As such the prior art references in combination or each reference standing alone do not suggest the present invention. However, even if they did, they could only be applied through hindsight after rearranging the disclosure of the prior art in view of applicants' invention. A combination of the prior art in this way to derive applicants' invention would, in and of itself, be an invention.

Conclusion

In view of the above, applicants respectfully submit that the claims are clearly distinguished over the prior art and are therefore allowable. Accordingly, applicants respectfully solicit the allowance of the claims pending in this case.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gerald E. McGlynn, III", is written over a horizontal line.

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